

RACES OF THE INDIAN GIANT SQUIRREL
(*RATUFA INDICA*)

BY

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(With a plate)

In October 1950 H.A. was at Bhimashankar, Poona District, ($19^{\circ}5' \text{ N.} \times 73^{\circ}30' \text{ E}$) about 25 miles north-north-east of Khandala, and was struck by the large amount of the white in the tail of the several giant squirrels observed by him there. Upon returning to Bombay he examined specimens in the Society's collections, and from the literature available it appeared that there was something unusual about the squirrels seen. On the 16th April the place was revisited with Sálím Ali and two specimens collected. The base of the tail blended in coloration with the rump and hind legs, and there was actually more brown at the base than had been apparent on first sight. H.A. and J.C.D., however scrutinized all the specimens in the Society's collection with the help of the literature available, and the following results appear to be worth recording.

Six races have so far been described in India as follows :

1. *R. i. indica* : Erxleben 1776

Type locality : "Bombay Presidency".

Racial characters : Body colour brown throughout, with underparts yellowish and forehead clay coloured. Tail same colour as body with pale tip.

Blanford (1897) portrays a hazel specimen with about a third of the tail white.

Wroughton (1910) states that the animals from the north of Poona are hazel in colour while those from the south of Poona are bay.

The two specimens from Bhimashankar are hazel and both Humayun Abdulali and Sálím Ali, who had a look at several specimens in the field, are sure that all the animals seen at Bhimashankar were of this colour. Eleven specimens examined from Khandala were bay with slight variations in colour while one (B.N.H.S. Col. No. 6294 ; collector Br. Novarro, September 11, 1951) almost matches the Bhimashankar hazel.

Fourteen specimens from Khandala have the pale tip to the tail ranging from 30% to 52.5% of the whole length of the tail (average 43.2%). The two from Bhimashankar have 50.25 and 50.4% of the tail white respectively.

Twelve specimens from the southern part of the Bombay Presidency, Samasgi, Devikop and Kadra on the Kanara border, are bay and agree with the eleven from Khandala referred to above. One specimen from Devikop (B.N.H.S. Col. No. M. 51, November 22, 1911) is slightly lighter in coloration.

Eleven specimens from the south have much less white in the tail ranging from 15.75 to 33.3% (average 24.65%).

One shot and examined by Humayun Abdulali at Mahableshtar (October 1951) appeared to be identical with skins from Kanara.

With reference to the amount of white in the tail, it might be explained that in all the specimens the reddish-brown of the rump gradually diffuses into white towards the tip, and it is not possible to determine where exactly the white starts. The measurements were taken from intermediary positions and to this extent are somewhat arbitrary, though consistent.

Among the skins from Khandala one has a black patch at the base end of the tail (B.N.H.S. Col. No. 6286) and three are black on the upper foreleg (Nos. 6286, 6287 and 6296).

Of the specimens from south Bombay, two females (M. 1328, September 1940, and M. 46, March 14, 1912) and a male (M. 56, March 1912) from Karwar Head and Samasgi, Kanara border, have distinct black patches where the foreleg meets the shoulder, there being more black on the upper arm than on the shoulder. Specimens with no black patches have, however, been obtained from the same camp. A juvenile from Samasgi (1278, March 15, 1912) is bay all over. The black on the forearm is therefore not a constant character though it shows a tendency towards *centralis*.

From the above it appears that the specimens from Khandala and Bhimashankar can be separated from those from southern Bombay State (as far north as Mahabaleshwar) by the larger amount of white in the tail. The two former are also separable *inter se* by their coloration—hazel at Bhimashankar, bay at Khandala. Sykes, in the original description of *elphinstonei* (P.Z.S., 1831, p. 103—'Western Ghats') stated that half the tail was reddish chestnut and the other half a fine reddish-white. Wroughton also suggested that if the forms from north and south Bombay should be found to be different, Sykes's name *elphinstonei* would stand. This name would thus be applicable to the Bhimashankar form, while should the Khandala type prove to be sufficiently constant it would require another name.

A draft copy of this paper was sent to the British Museum for comments and Mr. R. W. Hayman suggested the possibility of a seasonal change being responsible for the differences in colour. Of *indica* we have 8 skins collected at Khandala in September and May which show no difference in colour. The hazel skin from Khandala was obtained in September as compared with April for Bhimashankar. Specimens of the other races in the B.N.H.S. collection are also spread out over different months of the year. There is nothing to indicate any seasonal change in coloration.

2. *R. i. dealbata* Blanford* 1897.

Type locality: Surat Dangs.

Habitat: Moist deciduous forest.

The body colour is cream buff with the tail paler. Ear tufts brown.

Wroughton in 1910, opined that this extraordinary race was extinct, but recently several specimens were obtained from Songadh and

* In the 'Checklist of Palearctic and Indian Mammals (1758 to 1946)' by J. R. Ellerman and T.C.S. Morrison-Scott London (1951) it is suggested that *dealbata* is possibly based on albinistic individuals of *Ratufa indica*. In view of the fresh specimens recently obtained at different places in the Surat Dangs area there can be no doubt that it is a good race.

Mheskatri in the Dangs by Sálím Ali (1948) who reports it to be not uncommon though patchily distributed. The specimens from Mheskatri are tinged with grey at the base of the tail and are brownish on the rump.

3. *R. i. superans* Ryley 1913.

Type locality: Wotekalli, South Coorg (West of Brahmagiris).

Habitat: Evergreen forest.

This is described on its appreciably larger size, the colour being identical with that of the bay *indica* from Kanara.

Messrs. C. J. Leslie and A. F. Hutton of Kadamane Estate, Hassan District, Mysore, have recently sent us three specimens which measure:

Head and Body:	500, 470 and 420 mm.	(340 to 380 mm.)
Tail	500, 520 and 510 mm.	(370 to 446 mm.)
Length of skull	79, 79 and 78 mm.	(68 to 74 mm.)

The figures in parenthesis indicate the measurements quoted by Ryley for *indica*. It would appear that on measurements these specimens are *superans*, extending the known distribution of the race appreciably northwards.

4. *R. i. bengalensis* Blanford 1897.

This is an unfortunate name. The type locality is not known and the specimens collected by the Society's Mammal Survey at Huwinakadu Estate, Kutta in South Coorg have been identified as of this race. In size it is equal to *superans* and identical with it in colour except that the tail is black with a pale rufous tip.

This race was only known definitely from the jungles on the eastern side of the Brahmagiris in Coorg. We have recently received two specimens (tails 390 mm. and broken) from Wynaad, Nilgiris, from Mr. A. F. Hutton which agree with this form in colour. Another from the confluence of the Segur and Mavinhalli rivers, north Nilgiri Wynaad 2,500 ft. (tail 490 mm.) and a third from Lovedale, Ootacamund, 7,300 ft. (tail 380 mm.)—both obtained by Capt. K. Boswell—are similar except that these have black patches on the upper forelegs. The presence or absence of this character seems to be of no significance in *indica* and it is possibly the same in *bengalensis*.

A fourth specimen from Kotagiri (C. Primrose, Rookery Estate, Kotagiri, Nilgiris) is marked *maxima* but has a white tip to the tail (480 mm.) rendering this identification inadmissible. The black of the upper arm extends to the shoulders as in *centralis*. The fur is also exceptionally long. A note by C. McCann on the index card reads 'this seems to be intermediate between true *maxima* and *bengalensis*.' Specimens obtained by the Mammal Survey at Kotagiri are said to be *centralis* (J. B. N. H. S., XXVI, p. 1033). Mr. R. W. Hayman of the British Museum, who has kindly re-examined them in London states that 'they are *centralis* in colour, but the measurements appear to overlap those of *bengalensis*'. *

* Ellerman & Morrison-Scott (1951) state that *centralis* occurs in the Nilgiri Hills apparently at localities different from where *R. i. maxima* is found.

Another obtained by A. F. Hutton in the Annamallais, 20 miles north-west of Valparai on the Cochin border is near *bengalensis* (tail 480 mm.) but shows a tendency towards *maxima* and/or *centralis*, a thin black line extending from the rump half way towards the shoulder together with prominent black patches on the forearm.

The presence of black on the upper forearm in several of the Nilgiris skins does suggest *centralis*, but though slightly smaller in size they appear to be nearer to *bengalensis*. Measurements have been restricted to the tail as head and body measurements in flat skins are difficult. A few of the skins examined are chrome-tanned and the hair appears to have a much higher gloss than in the other skins.

5. *R. i. maxima* Schreber 1788.

Type locality: Malabar.

This form is bay coloured with the upper-arm, shoulder, rump and tail black and with a median black dorsal line in most cases. The tail is completely black with no pale tip, but with a thin line of rufous running along the length of the lower surface. The only adult in the Society's collection from Tenmalai, Travancore, is also distinguishable from the other races by its white forefeet (as against rufous of varying shades), the relative paleness of the hind-feet as compared to the body, and by the head being concolorous with the bay on other parts of the body (not grizzled or darker as in the other races.)

The Mammal Survey (*J.B.N.H.S.*, XXXI, p. 595) recorded this race from the High Wavy Mountains and Cotengady Estate, Annamaad and Ottacoolie Estate in the Nelliampathi Hills (Palghat District). It was also obtained in the Palnis.

Mr. Hutton who has been of considerable assistance in obtaining specimens from South India has provided 3 more skins, two (including a juvenile) from the High Wavy Mountains and one from '6500 feet up in a small shola in the Grass Hills half-way between the Annamallais and the High Range.' These skins have all the characteristics of *maxima* including the additional distinguishing features mentioned above.

It is not quite clear from the material available where *maxima* meets *bengalensis*. A skin from the Annamallais on the Cochin border has been referred to as *bengalensis* while another from the Grass Hills further south is typical *maxima*. The dividing line would lie somewhere in between, and it would be interesting to attempt to associate this with some physical boundary. Mr. Hutton states that he has not seen *maxima* below 3000 ft.

The two forms mentioned by Hutton in his paper on 'The Mammals of the High Wavy Mountains' (*J.B.N.H.S.*, 48, p. 691) appear to be covered by the known variations in *maxima*.

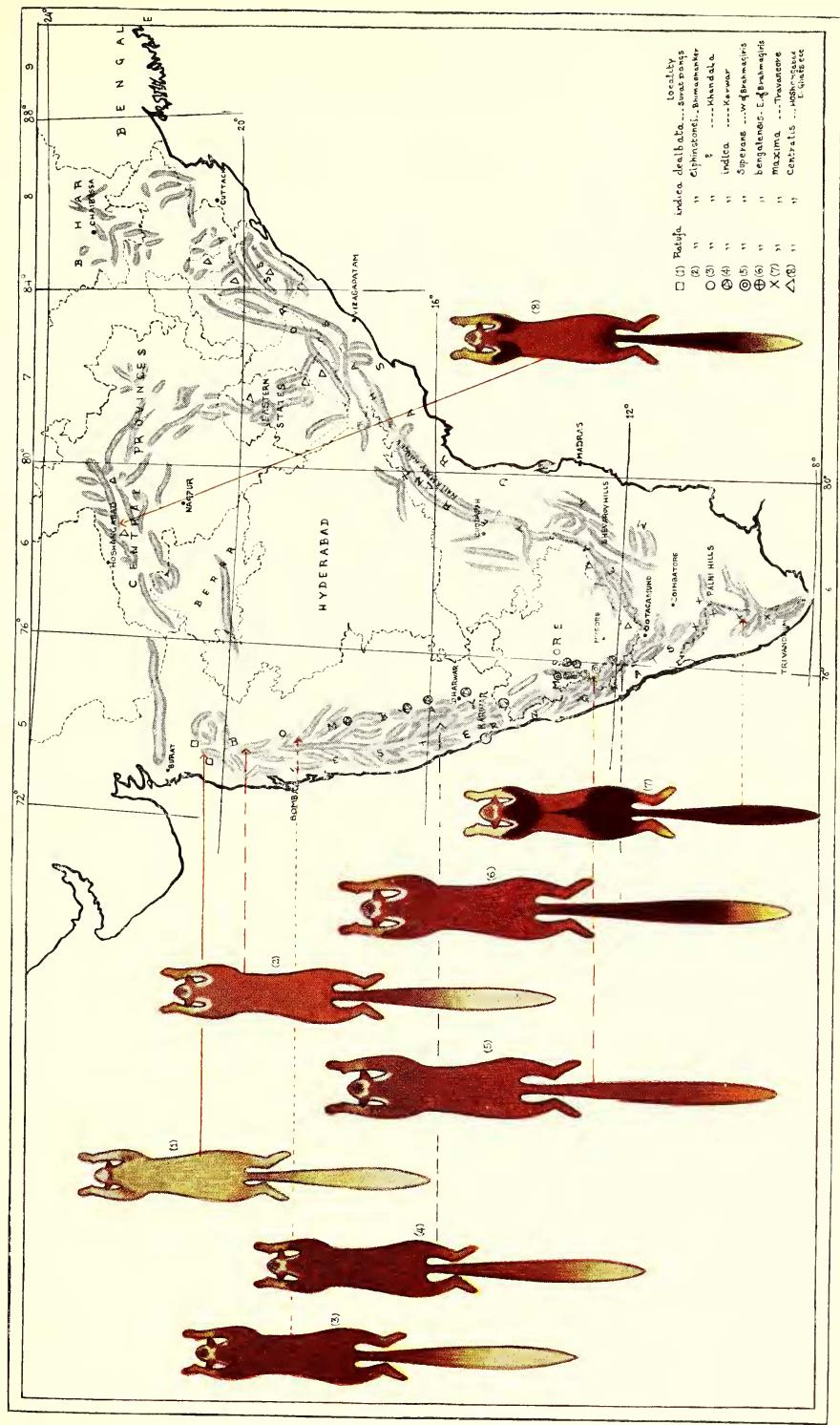
McCann (*J.B.N.H.S.*, XXXI, p. 595) notes that 'the cry of this race is much sweeter than that of the ordinary *Ratufa*', presumably referring to animals from Khandala with which area he was familiar.

6. *R. i. centralis* Ryley 1913.

Type locality: Bori, Hoshangabad District, C.P.

Habitat: Moist and dry deciduous jungle.

This was originally separated from *bengalensis* on its smaller size and

Races of the Indian Giant Squirrel (*Ratufa indica*).

